

- ~~(b) — recording the one or more symptoms or complaints in computer memory;~~
- ~~(c) — selecting one or more specific questions in response to the receipt of preliminary patient information, and transmitting the one or more specific questions to at least one of the patient and a medical practitioner;~~
- ~~(d) — receiving specific patient information in response to the one or more specific questions;~~
- ~~(e) — arranging the preliminary patient information and specific patient information into a formatted report;~~
- ~~(f) — retrieving at least one proposed treatment strategy and/or medical assessment based upon the formatted report, and incorporating the proposed treatment strategy and/or medical assessment into the formatted report to generate a proposed medical report;~~
- ~~(g) — transmitting the proposed medical report to a physician;~~
- ~~(h) — receiving an edited medical report from the physician which modifies and/or adds information to the proposed medical report; and~~
- ~~(i) — storing the edited medical report in computer memory with the patient identifier.~~

~~8. — The method of claim 7 wherein step (d) further includes the steps of selecting one or more follow-up questions based upon the received specific patient information, and receiving further patient information in response to the follow-up~~

questions, so as to provide question branching capabilities wherein a sequence of relevant questions are selected and patient information is collected.

9. — The method of claim 8 wherein the follow up questions are unimodal.

10. — The method of claim 8 wherein the follow up questions are selected based upon at least one of: (a) a patient's level of education, (b) a patient's age, (c) a patient's gender, (d) a patient's ethnicity, and (e) a patient's socioeconomic background.

11. — The method of claim 8 wherein at least one of the specific questions or at least one of the follow up questions include a triage question to highlight one or more areas of immediate concern.

12. — The method of claim 8 wherein at least one of the specific questions or at least one of the follow up questions include a screening question that covers a health issue.

13. — The method of claim 8 wherein step (d) further includes the step of generating concatenated text strings from the received specific patient information and the received further patient information.

14. — The method of claim 13 wherein the concatenated text strings are used to generate one or more confirmation messages, the confirmation messages being transmitted to at least one of a patient and a medical practitioner, by which the patient and/or the medical practitioner can either confirm or deny receipt of correct specific patient information and/or correct further patient information.

~~15. — The method of claim 13 wherein the concatenated text strings are used to generate audio and/or voice signals which are then transmitted to at least one of a patient and a medical practitioner.~~

~~16. — The method of claim 7 wherein step (e) further includes the step of analyzing the formatted report in real time using Boolean logic based upon expert-determined criteria for identifying at least one of symptom complexes and interrelated medical problems.~~

~~17. — The method of claim 8 wherein the follow up questions are provided using an interactive graphical interface customized for a given patient based upon at least one of received specific patient information and received further patient information.~~

~~18. — The method of claim 17 wherein the interactive graphical interface includes multimedia elements selected from the group consisting of: (a) images, (b) sound, (c) video clips, and (d) animations.~~

~~19. — The method of claim 17 wherein the interactive graphical user interface includes a touch-screen computer monitor.~~

~~20. — The method of claim 17 further including the steps of receiving further patient information in voice form and electronically recording the further patient information.~~

~~21. — The method of claim 16 wherein the step of analyzing further includes the step of applying a quality of life assessment to at least one of the received specific patient information and received further patient information so as to provide a predicted assessment of the proposed treatment strategy.~~

22. ~~The method of claim 21 wherein the quality of life assessment considers at least one of frequency of symptoms, severity of symptoms, and disruption of functions and activities of daily living.~~

---

23. A web-based data processing system for enhancing patient-physician communications by collecting comprehensive, structured health information from a patient and organizing and presenting the health information for use by clinicians, the system comprising the following components:

(a) a data processing mechanism programmed to gather health information and relative importance data from patients, the data processing mechanism including an automated interviewing mechanism for conducting a patient interview using a logic-driven, branching menu structure for determining at least one of an inquiry scope and an inquiry depth for the patient interview in response to the relative importance data received from the patient; the relative importance data specifying relative importance of each of a plurality of health issues to the patient; the inquiry scope specifying a range of interview topics to be covered, and the inquiry depth specifying a level of detail for a characterization of elicited symptoms;

wherein the data processing mechanism is also programmed to analyze, prioritize, and arrange gathered health information for at least one of printout and display, so as to provide access and management of health information in a problem-based structure, organized by symptom and/or medical condition;

the data processing mechanism further including an interview configuration selection mechanism by which at least one of clinician, a clinical investigator, an

administrator, a research coordinator, a physician, a nurse, and a health care professional designate an interview configuration profile for a patient, set up patient interview schedules, and designate a receiving physician for receiving a patient report corresponding to the patient;

(b) a patient health information database, coupled to the processing mechanism, for storing gathered health information; and

(c) an Internet server, coupled to the data processing mechanism and to the patient health information database, the Internet server providing problem-based access to current and past health information stored in the patient health information database.

24. The system of claim 23 wherein the Internet server encrypts information and provides access to the health information database through a password-protected web page.

25. The system of claim 23 wherein the data processing mechanism is programmed to implement a computerized, patient self-administered interview, such that the interview is structured using a plurality of modules, each corresponding to a respective subject matter area including at least one of physical symptoms, psychosocial conditions, health behaviors, active (current) and past medical conditions, surgeries, procedures, medications and undesirable reactions to medications, allergies, family history, health-related quality of life, functional status, and activities of daily living.

26. The system of claim 23 wherein at least one of the inquiry scope and the inquiry depth for the patient are further defined by the data processing mechanism

receiving a selection of an interview configuration profile from at least one of a clinician,  
a clinical investigator, an administrator, a research coordinator, a physician, a nurse, and  
a health care professional.

27. The system of claim 23 wherein the processing mechanism matches a  
specific interview configuration profile to a patient at the time the patient is scheduled for  
a health care appointment.

28. The system of claim 23 wherein at least one of a clinician, a clinical  
investigator, an administrator, a research coordinator, a physician, a nurse, and a health  
care professional match a specific interview configuration profile to a patient at the time  
the patient is scheduled for a health care appointment.

29. The system of claim 25 wherein each of the plurality of modules includes  
one or more screening questions that cover topics relevant for that module.

30. The system of claim 23 wherein the processing mechanism further  
comprises a configuration mechanism for constraining length of the interview by  
pursuing in-depth questions as a function of at least two of the following: importance to  
the patient, currency of the symptom, and relevance to clinical or research requirements.

31. The system of claim 30 wherein the processing mechanism conducts the  
interview using one or more of four elements implemented with program logic: **(a)** an  
interview configuration profile (as selected by the physician), **(b)** potential medical  
relevance or urgency (as assessed by program logic), **(c)** temporal status (current versus  
past), and **(d)** importance as indicated by the patient with respect to priority for  
discussion with the physician.

32. The system of claim 29 wherein the processing mechanism is programmed to include a patient viewpoint module for presenting one or more questions to the patient during the interview establish an interview purpose from the patient's point of view, wherein the questions include at least one of a change in the patient's established symptoms, development of new symptoms, problems with medications, obtaining testing results, clarification of questions, and referrals from another clinic or clinician.

33. The system of claim 23 wherein the processing mechanism is programmed to gather health information related to multiple distinct or overlapping symptoms; and wherein no previous diagnosis is required for system use.

34. The system of claim 25 wherein the processing mechanism is programmed to implement at least one of (i) <sup>predetermining what?</sup> predetermining and (ii) <sup>②</sup> adapting interview configuration profiles for clinical or research purposes, such that:

(a) the interview configuration profile uses one or more on-off thresholds to control access to each of the plurality of modules;

(b) each of the plurality of modules includes one or more content blocks, each content block including one or more questions substantially representing a particular degree of detail, the degree of detail determining the depth of the interview;

(c) the interview configuration profile contains each of a plurality of content block thresholds, each content block threshold controlling entry into a corresponding content block; and

(d) initial screening questions are employed to gather data from a patient regarding both priority (importance to the patient) and currency (current or past).

35. The system of claim 34 wherein the processing mechanism is programmed:

(a) to configure the content block thresholds using a logical comparator to patient responses so that thresholds for each of a plurality of levels can be set to prioritize the patient responses, and to include or exclude past-major symptoms;

(b) to configure the content block thresholds, representing the depth of the interview, independently for each of a plurality of content blocks, thereby allowing the interview to be contoured to the requirements of any particular clinician, clinical setting, and/or research study;

B1 (c) to provide a comparator setting mechanism so as to permit setting the logical comparator to permit detailed characterization of a given symptom, even if the symptom is a low priority response; and

(d) to execute the interview based upon by at least one of (i) interaction between the interview configuration profile, the purpose of the interview, and the patient responses regarding priority or currency of symptoms or conditions, and (ii) the potential medical relevance or urgency as assessed by program logic.

36. The system of claim 23 wherein the processing mechanism further comprises a mechanism for obtaining a history of and characterization of multiple symptoms, regardless of whether they are discrete, separate medical conditions, or overlapping and related, reflecting linkage to common mechanisms or the same underlying medical condition:



(a) wherein potential associations between symptoms are identified based upon clinical experience;

(b) wherein, after ascertaining from the patient the presence of more than one symptom in an association of symptoms, an interview question is asked about which symptoms come and go together in the same time pattern or in response to the same group of precipitating and relieving factors, thereby establishing an instance of an association;

(c) wherein subsequent interview questions characterizing the associated symptoms are combined, thereby reducing the time and redundancy of the interview;

31 (d) wherein the risk of confusing the patient is reduced by detecting relations between symptoms when they exist or allowing symptoms to stand as independent when no association is identified; and

(e) wherein data are gathered to help establish whether the development of new symptoms or the change in status of established symptoms reflects a change in disease condition, side effects of medication, development of a related condition, or development of an unrelated condition.

37. The system of claim 23 wherein the processing mechanism is programmed to conduct an interview that integrates biomedical and psychosocial elements;

(a) such that the interview captures scaled responses for at least one of frequency or distress, and bother associated with the symptom, rather than categorical (yes-no) responses;

(b) such that the health information is used as the basis for a personal interview by a clinician to establish psychiatric diagnosis by means of established criteria (DSM-IV, Diagnostic and Statistical Manual for Psychiatric Disease);

(c) wherein biopsychosocial health information is presented to a clinician using either a printed report format or a display presentation presented using at least one of a printer and a visual display device; and

(d) wherein the data presentation ranks patient symptoms or positive responses by criteria, such as severity, frequency, or probability of meeting diagnostic thresholds. *indif*

38. The system of claim 37:

B1 (a) wherein the data presentation includes comments and instructions regarding interpretations or subsequent questions;

(b) wherein data presentation includes scores for symptoms or conditions that can be used for diagnostic purposes;

(c) wherein clinicians change patient inputted data and recalculate the scores;

(d) wherein clinicians respond to additional interview questions and recalculate scores;

(e) wherein the interview is constructed in modules that ~~cover~~ *indif* a plurality of disorders, thereby allowing the interview to cover any desired scope of psychiatric disorders; and

(f) wherein the interview process prepares the patient for a personal interview with the clinician.

39. The system of claim 23 wherein the processing mechanism further comprises a mechanism for gathering patient data regarding their health-related quality of life (HRQL) data, which include the patient's functional status regarding physical activities, ability to work, be active socially, participate in relationships, perform activities of daily living, personal hygiene, and care:

(a) wherein HRQL data will be used for one of more of the following: clinical care, research purposes, or quality management;

B1 (b) wherein, <sup>*contra positive recitation*</sup> if the interview configuration calls for HRQL questioning, initial screening questions will first establish potential problem areas and then prompt more detailed questions;

(c) wherein, when specific symptoms or medical conditions are identified, more specific HRQL question sets will be selectively applied to ascertain detailed data regarding the impact of specific conditions on HRQL;

(d) wherein, more specific questioning uses a <sup>*indef*</sup> generic structure to pursue issues common to several medical and psychosocial conditions, <sup>*indef*</sup> such as impact of disease on self image, social life, sexual relations, functioning at work, and ability to engage in hobbies;

(e) wherein wording parameters are used to substitute wordings specific for a given condition in a given patient, thereby allowing a generic approach to be automatically applied to specific conditions; and thereby providing specific measures of

HRQL that will be useful for establishing change in patient status as a result of disease progression or treatment.

40. The system of claim 23 wherein the processing mechanism further comprises a mechanism for conducting interview sessions to run in a single session, or to be suspended and completed at a subsequent session; wherein residual modules that were not conducted can be completed at a subsequent session.

41. The system of claim 23 wherein the processing mechanism further comprises a mechanism for supporting a subsequent follow-up interview for at least one of clinical care, research, or quality management purposes.

42. The system of claim 41 wherein:

Bl (a) the processing mechanism gathers at least one of interim change data specifying a change in established symptoms, new symptom data specifying new symptoms, status change data specifying a change in status, and available information data specifying a change in available information regarding aspects of an individual's health condition;

(b) the processing mechanism causes predetermined interview questions to be repeated, gathering a matching set for comparison with previous data.

---

43. The system of claim 42 wherein:

(a) interview questions related to symptoms active at a previous interview are presented to the patient, the interview questions inquiring about status (worse, no change, better, not sure);

(b) a summary of active and past medical conditions, surgical history, and family history is presented to ascertain whether any new developments have occurred or whether the patient is aware of information not reported last time; and

(c) health-related quality of life questions are asked to determine the patients functional status and impact of health conditions, thereby providing a sound basis for assessing change for the purposes of clinical care, clinical research, or assessment of the quality of care.

44. The system of claim 37 wherein:

(a) current patient information is accessed from the database of patient information by problem area, symptom, or <sup>?</sup>medical conditioning;

(b) the data presentation is presented in a medical problem-oriented manner;

(c) the data presentation orders data by patient priority, currency, and/or previously assigned physician ranking, such that most important issues can be identified and separated from low priority or past issues;

(d) names of medical problems are modifiable, and new names can be created;

(e) a hierarchy of medical problems (including both symptoms and medical conditions) can be changed, and <sup>medical</sup> symptoms can be associated and/or disassociated from problems; and

(f) comments are accepted related to patient history, physical examination, assessment of etiology, and plans for treatment and follow-up.

45. The system of claim 44 wherein the data presentation is represented in a "SOAP" format which includes subjective or patient-reported symptoms, Objective or clinician observations, Assessment, and Plans;

wherein the data presentation can be electronically edited and signed to thereby create a clinical note, as an official consultation report or progress note for the patient; and

wherein an audit trail is provided for changes in clinical notes before electronic signature and clinical notes are frozen for editing after signature.

46. The system of claim 23 further comprising a display mechanism for managing patient information by displaying current or past health information in a medical problem-oriented fashion, thereby allowing past and current health information for a given medical problem to be identified and viewed.

47. The system of claim 46:

wherein a template function is provided for entering health information regarding physical examination, assessment, and plans;

wherein a menu of treatment plans for each of a plurality of predefined health problems are established by a consensus of clinical experts or review of medical literature; and

wherein an action or actions to be taken from a list of commonly taken clinician actions enumerated in treatment plans is/are selected.

48. The system of claim 47:

wherein selected treatment options summarized in treatment plans are printed in a list or directly linked to generation of orders by means of an electronic medical record or order-execution system;

(1) wherein the list complies with <sup>*indef*</sup> requirements of a practice group, provider organization or potential payor insurance.

49. The system of claim 23 wherein the processing mechanism is programmed to schedule patient contacts, physician communication, and patient appointments;

wherein patient contact information is gathered at the time the interview is scheduled, including at least one of patient email address, telephone phone number, or address for regular mail;

wherein select interview configurations are matched to patients;

wherein interview modules are selected to be run or repeated at the next session;

and wherein a pre-formatted or free text messages is generated, and a patient contact is activated including at least one of: a clinic visit or testing appointment

schedule, a request to perform computer interviews or additional interview modules, test results, instructions, and reminders to do or complete follow-up electronic interviews.

50. *What functions?* The system of claim 23 further comprising a mechanism for integrating administrative functions relating to documentation of health problem management, and generating a report based on patient-inputted or physician-inputted data, such that clinicians accept a provisionally-assigned health problem name or re-select problem names from a pre-defined list of established health problem names;

(a) wherein, when a health problem name is selected, matching automatically occurs to a standard ICD-9 diagnostic and billing code; and

(b) wherein health information regarding active problems that were attended during a clinic session are used to generate and update a health problem list, pursuant to specifications promulgated by the Joint Commission on Accreditation of Hospital Organization (JCAHO).

51. The system of claim 50 wherein health information regarding active problems that were attended during a clinic session are used to generate an encounter form summarizing such problems that can be used for billing purposes;

wherein components of the interview and data presentation are analyzed and categorized with respect to established criteria to identify appropriate coding for the level of services offered for billing purposes;

wherein a clinical note is generated which includes reference to expense coding for billing purposes and documentation for that coding; and



wherein data regarding such documentation for billing purposes are available in the health information database for separate analysis.

52. The system of claim 23 wherein the processing mechanism is programmed to implement a patient interview:

(a) wherein a non-response to a question is not offered as an option and responses are required before it is possible to proceed to the next question; and

(b) wherein responses for each question are designed to include an appropriate response for patients;

53. The system of claim 23 further comprising a mechanism for implementing quality assessment and improvement based upon patient-inputted data;

(a) wherein <sup>*no cost*</sup> the quality management is based upon patient responses regarding issues including at least one of symptoms, patient understanding of a health condition, patient health attitudes and behaviors, patient willingness to change health behaviors, patient perceptions of communication with a clinician, patient understanding of a treatment they are receiving, patient understanding of medications they should be using and patient compliance with medication and with treatment.

54. The system of claim 53 wherein quality improvement is focused on either preventive health or disease status and treatment;

wherein patient-derived quality data are integrated into the clinical report given to the physician so that action can be taken during the upcoming session or subsequently to correct medical problems and improve care;

wherein such quality improvement data can be presented to a clinician with suggestions regarding appropriate care; and

wherein an interview regarding quality of care can be conducted at one or more of the following times: during the pre-visit interview, during a exit interview at the time of the session, during a follow-up interview where patients are sent an email reminder, and by means of questions inserted into a revisit interview.

*indif conducted or not?*

55. The system of claim 23 wherein the processing mechanism is programmed to assess patient satisfaction with medical care, such that

interview questions probe issues including at least one of the patient's satisfaction with a physician or a clinic encounter, waiting times for an appointment, waiting times to see a clinician, access to care, and courtesy with which the patient is treated.

56. The system of claim 55 wherein the interview questions are asked at one or more of the following times: during a pre-visit interview, during an exit interview at the time of the session, during a follow-up interview where patients are sent an email reminder, and by means of questions inserted into a revisit interview;

57. The system of claim 23 wherein the processing mechanism further comprises a mechanism for supporting and facilitating clinical research in practice settings, as well as in research clinics, such that:

*what's the mechanism?*

- (a) automated patient recruitment is used for research trials;
- (b) patients are asked if they would like to be informed regarding research studies for which they are eligible;

*all intended usage*

(c) eligibility requirements for research studies are entered and system logic is used to identify when patient responses regarding symptoms or medical conditions or patient demographics, such as age or gender, qualify the patient for a research study;

(d) patients are informed of studies for which they are eligible by computerized notification; and

(e) patients are electronically forwarded a specific description of the study and asked if they would like their contact information forwarded to investigators, or if they want contact information for investigators.

58. The system of claim 23 wherein the processing mechanism is programmed to aid clinical research, such that:

(a) data regarding patient assessment, clinical outcomes, and physician treatment process gathered in the course of care using the system populates the health information database and can be used for research purposes; and

(b) the system is used for clinical trials to facilitate capture of patient assessment data regarding biomedical and psychosocial issues, data regarding physician treatment process, and followup data for process and outcomes.

59. The system of claim 23 wherein the processing mechanism is programmed to:

(a) elicit and structure information for a corporate wellness intervention; and

(b) track patient response to corporate wellness interventions over time.



## CLEAN VERSION OF CLAIMS

23. A web-based data processing system for enhancing patient-physician communications by collecting comprehensive, structured health information from a patient and organizing and presenting the health information for use by clinicians, the system comprising the following components:

(a) a data processing mechanism programmed to gather health information and relative importance data from patients, the data processing mechanism including an automated interviewing mechanism for conducting a patient interview using a logic-driven, branching menu structure for determining at least one of an inquiry scope and an inquiry depth for the patient interview in response to the relative importance data received from the patient; the relative importance data specifying relative importance of each of a plurality of health issues to the patient; the inquiry scope specifying a range of interview topics to be covered, and the inquiry depth specifying a level of detail for a characterization of elicited symptoms;

wherein the data processing mechanism is also programmed to analyze, prioritize, and arrange gathered health information for at least one of printout and display, so as to provide access and management of health information in a problem-based structure, organized by symptom and/or medical condition;

the data processing mechanism further including an interview configuration selection mechanism by which at least one of clinician, a clinical investigator, an administrator, a research coordinator, a physician, a nurse, and a health care professional designate an interview configuration profile for a patient, set up patient interview

schedules, and designate a receiving physician for receiving a patient report corresponding to the patient;

(b) a patient health information database, coupled to the processing mechanism, for storing gathered health information; and

(c) an Internet server, coupled to the data processing mechanism and to the patient health information database, the Internet server providing problem-based access to current and past health information stored in the patient health information database.

24. The system of claim 23 wherein the Internet server encrypts information and provides access to the health information database through a password-protected web page.

25. The system of claim 23 wherein the data processing mechanism is programmed to implement a computerized, patient self-administered interview, such that the interview is structured using a plurality of modules, each corresponding to a respective subject matter area including at least one of physical symptoms, psychosocial conditions, health behaviors, active (current) and past medical conditions, surgeries, procedures, medications and undesirable reactions to medications, allergies, family history, health-related quality of life, functional status, and activities of daily living.

26. The system of claim 23 wherein at least one of the inquiry scope and the inquiry depth for the patient are further defined by the data processing mechanism receiving a selection of an interview configuration profile from at least one of a clinician,

a clinical investigator, an administrator, a research coordinator, a physician, a nurse, and a health care professional.

27. The system of claim 23 wherein the processing mechanism matches a specific interview configuration profile to a patient at the time the patient is scheduled for a health care appointment.

28. The system of claim 23 wherein at least one of a clinician, a clinical investigator, an administrator, a research coordinator, a physician, a nurse, and a health care professional match a specific interview configuration profile to a patient at the time the patient is scheduled for a health care appointment.

29. The system of claim 25 wherein each of the plurality of modules includes one or more screening questions that cover topics relevant for that module.

30. The system of claim 23 wherein the processing mechanism further comprises a configuration mechanism for constraining length of the interview by pursuing in-depth questions as a function of at least two of the following: importance to the patient, currency of the symptom, and relevance to clinical or research requirements.

31. The system of claim 30 wherein the processing mechanism conducts the interview using one or more of four elements implemented with program logic: (a) an interview configuration profile (as selected by the physician), (b) potential medical relevance or urgency (as assessed by program logic), (c) temporal status (current versus past), and (d) importance as indicated by the patient with respect to priority for discussion with the physician.

32. The system of claim 29 wherein the processing mechanism is programmed to include a patient viewpoint module for presenting one or more questions to the patient during the interview establish an interview purpose from the patient's point of view, wherein the questions include at least one of a change in the patient's established symptoms, development of new symptoms, problems with medications, obtaining testing results, clarification of questions, and referrals from another clinic or clinician.

33. The system of claim 23 wherein the processing mechanism is programmed to gather health information related to multiple distinct or overlapping symptoms; and wherein no previous diagnosis is required for system use.

34. The system of claim 25 wherein the processing mechanism is programmed to implement at least one of (i) predetermining and (ii) adapting interview configuration profiles for clinical or research purposes, such that:

(a) the interview configuration profile uses one or more on-off thresholds to control access to each of the plurality of modules;

(b) each of the plurality of modules includes one or more content blocks, each content block including one or more questions substantially representing a particular degree of detail, the degree of detail determining the depth of the interview;

(c) the interview configuration profile contains each of a plurality of content block thresholds, each content block threshold controlling entry into a corresponding content block; and

(d) initial screening questions are employed to gather data from a patient regarding both priority (importance to the patient) and currency (current or past).

35. The system of claim 34 wherein the processing mechanism is programmed:

(a) to configure the content block thresholds using a logical comparator to patient responses so that thresholds for each of a plurality of levels can be set to prioritize the patient responses, and to include or exclude past-major symptoms;

(b) to configure the content block thresholds, representing the depth of the interview, independently for each of a plurality of content blocks, thereby allowing the interview to be contoured to the requirements of any particular clinician, clinical setting, and/or research study;

(c) to provide a comparator setting mechanism so as to permit setting the logical comparator to permit detailed characterization of a given symptom, even if the symptom is a low priority response; and

(d) to execute the interview based upon by at least one of (i) interaction between the interview configuration profile, the purpose of the interview, and the patient responses regarding priority or currency of symptoms or conditions, and (ii) the potential medical relevance or urgency as assessed by program logic.

36. The system of claim 23 wherein the processing mechanism further comprises a mechanism for obtaining a history of and characterization of multiple symptoms, regardless of whether they are discrete, separate medical conditions, or overlapping and related, reflecting linkage to common mechanisms or the same underlying medical condition:



(a) wherein potential associations between symptoms are identified based upon clinical experience;

(b) wherein, after ascertaining from the patient the presence of more than one symptom in an association of symptoms, an interview question is asked about which symptoms come and go together in the same time pattern or in response to the same group of precipitating and relieving factors, thereby establishing an instance of an association;

(c) wherein subsequent interview questions characterizing the associated symptoms are combined, thereby reducing the time and redundancy of the interview;

(d) wherein the risk of confusing the patient is reduced by detecting relations between symptoms when they exist or allowing symptoms to stand as independent when no association is identified; and

(e) wherein data are gathered to help establish whether the development of new symptoms or the change in status of established symptoms reflects a change in disease condition, side effects of medication, development of a related condition, or development of an unrelated condition.

37. The system of claim 23 wherein the processing mechanism is programmed to conduct an interview that integrates biomedical and psychosocial elements;

(a) such that the interview captures scaled responses for at least one of frequency or distress, and bother associated with the symptom, rather than categorical (yes-no) responses;

(b) such that the health information is used as the basis for a personal interview by a clinician to establish psychiatric diagnosis by means of established criteria (DSM-IV, Diagnostic and Statistical Manual for Psychiatric Disease);

(c) wherein biopsychosocial health information is presented to a clinician using either a printed report format or a display presentation presented using at least one of a printer and a visual display device; and

(d) wherein the data presentation ranks patient symptoms or positive responses by criteria, such as severity, frequency, or probability of meeting diagnostic thresholds.

38. The system of claim 37:

(a) wherein the data presentation includes comments and instructions regarding interpretations or subsequent questions;

(b) wherein data presentation includes scores for symptoms or conditions that can be used for diagnostic purposes;

(c) wherein clinicians change patient inputted data and recalculate the scores;

(d) wherein clinicians respond to additional interview questions and recalculate scores;

(e) wherein the interview is constructed in modules that cover a plurality of disorders, thereby allowing the interview to cover any desired scope of psychiatric disorders; and

(f) wherein the interview process prepares the patient for a personal interview with the clinician.

39. The system of claim 23 wherein the processing mechanism further comprises a mechanism for gathering patient data regarding their health-related quality of life (HRQL) data, which include the patient's functional status regarding physical activities, ability to work, be active socially, participate in relationships, perform activities of daily living, personal hygiene, and care:

(a) wherein HRQL data will be used for one of more of the following: clinical care, research purposes, or quality management;

(b) wherein, if the interview configuration calls for HRQL questioning, initial screening questions will first establish potential problem areas and then prompt more detailed questions;

(c) wherein, when specific symptoms or medical conditions are identified, more specific HRQL question sets will be selectively applied to ascertain detailed data regarding the impact of specific conditions on HRQL;

(d) wherein, more specific questioning uses a generic structure to pursue issues common to several medical and psychosocial conditions, such as impact of disease on self image, social life, sexual relations, functioning at work, and ability to engage in hobbies;

(e) wherein wording parameters are used to substitute wordings specific for a given condition in a given patient, thereby allowing a generic approach to be automatically applied to specific conditions; and thereby providing specific measures of

HRQL that will be useful for establishing change in patient status as a result of disease progression or treatment.

40. The system of claim 23 wherein the processing mechanism further comprises a mechanism for conducting interview sessions to run in a single session, or to be suspended and completed at a subsequent session; wherein residual modules that were not conducted can be completed at a subsequent session.

41. The system of claim 23 wherein the processing mechanism further comprises a mechanism for supporting a subsequent follow-up interview for at least one of clinical care, research, or quality management purposes.

42. The system of claim 41 wherein:

(a) the processing mechanism gathers at least one of interim change data specifying a change in established symptoms, new symptom data specifying new symptoms, status change data specifying a change in status, and available information data specifying a change in available information regarding aspects of an individual's health condition;

(b) the processing mechanism causes predetermined interview questions to be repeated, gathering a matching set for comparison with previous data.

43. The system of claim 42 wherein:

(a) interview questions related to symptoms active at a previous interview are presented to the patient, the interview questions inquiring about status (worse, no change, better, not sure);

(b) a summary of active and past medical conditions, surgical history, and family history is presented to ascertain whether any new developments have occurred or whether the patient is aware of information not reported last time; and

(c) health-related quality of life questions are asked to determine the patients functional status and impact of health conditions, thereby providing a sound basis for assessing change for the purposes of clinical care, clinical research, or assessment of the quality of care.

44. The system of claim 37 wherein:

(a) current patient information is accessed from the database of patient information by problem area, symptom, or medical conditioning;

(b) the data presentation is presented in a medical problem-oriented manner;

(c) the data presentation orders data by patient priority, currency, and/or previously assigned physician ranking, such that most important issues can be identified and separated from low priority or past issues;

(d) names of medical problems are modifiable, and new names can be created;

(e) a hierarchy of medical problems (including both symptoms and medical conditions) can be changed, and symptoms can be associated and/or disassociated from problems; and

(f) comments are accepted related to patient history, physical examination, assessment of etiology, and plans for treatment and follow-up.

45. The system of claim 44 wherein the data presentation is represented in a "SOAP" format which includes subjective or patient-reported symptoms, Objective or clinician observations, Assessment, and Plans;

wherein the data presentation can be electronically edited and signed to thereby create a clinical note, as an official consultation report or progress note for the patient; and

wherein an audit trail is provided for changes in clinical notes before electronic signature and clinical notes are frozen for editing after signature.

46. The system of claim 23 further comprising a display mechanism for managing patient information by displaying current or past health information in a medical problem-oriented fashion, thereby allowing past and current health information for a given medical problem to be identified and viewed.

47. The system of claim 46:

wherein a template function is provided for entering health information regarding physical examination, assessment, and plans;

wherein a menu of treatment plans for each of a plurality of predefined health problems are established by a consensus of clinical experts or review of medical literature; and

wherein an action or actions to be taken from a list of commonly taken clinician actions enumerated in treatment plans is/are selected.

48. The system of claim 47:

wherein selected treatment options summarized in treatment plans are printed in a list or directly linked to generation of orders by means of an electronic medical record or order-execution system;

(1) wherein the list complies with requirements of a practice group, provider organization or potential payor insurance.

49. The system of claim 23 wherein the processing mechanism is programmed to schedule patient contacts, physician communication, and patient appointments;

wherein patient contact information is gathered at the time the interview is scheduled, including at least one of patient email address, telephone phone number, or address for regular mail;

wherein select interview configurations are matched to patients;

wherein interview modules are selected to be run or repeated at the next session;

and wherein a pre-formatted or free text messages is generated, and a patient contact is activated including at least one of: a clinic visit or testing appointment

schedule, a request to perform computer interviews or additional interview modules, test results, instructions, and reminders to do or complete follow-up electronic interviews.

50. The system of claim 23 further comprising a mechanism for integrating administrative functions relating to documentation of health problem management, and generating a report based on patient-inputted or physician-inputted data, such that clinicians accept a provisionally-assigned health problem name or re-select problem names from a pre-defined list of established health problem names;

(a) wherein, when a health problem name is selected, matching automatically occurs to a standard ICD-9 diagnostic and billing code; and

(b) wherein health information regarding active problems that were attended during a clinic session are used to generate and update a health problem list, pursuant to specifications promulgated by the Joint Commission on Accreditation of Hospital Organization (JCAHO).

51. The system of claim 50 wherein health information regarding active problems that were attended during a clinic session are used to generate an encounter form summarizing such problems that can be used for billing purposes;

wherein components of the interview and data presentation are analyzed and categorized with respect to established criteria to identify appropriate coding for the level of services offered for billing purposes;

wherein a clinical note is generated which includes reference to expense coding for billing purposes and documentation for that coding; and



wherein data regarding such documentation for billing purposes are available in the health information database for separate analysis.

52. The system of claim 23 wherein the processing mechanism is programmed to implement a patient interview:

(a) wherein a non-response to a question is not offered as an option and responses are required before it is possible to proceed to the next question; and

(b) wherein responses for each question are designed to include an appropriate response for patients;

53. The system of claim 23 further comprising a mechanism for implementing quality assessment and improvement based upon patient-inputted data;

(a) wherein the quality management is based upon patient responses regarding issues including at least one of symptoms, patient understanding of a health condition, patient health attitudes and behaviors, patient willingness to change health behaviors, patient perceptions of communication with a clinician, patient understanding of a treatment they are receiving, patient understanding of medications they should be using and patient compliance with medication and with treatment.

54. The system of claim 53 wherein quality improvement is focused on either preventive health or disease status and treatment;

wherein patient-derived quality data are integrated into the clinical report given to the physician so that action can be taken during the upcoming session or subsequently to correct medical problems and improve care;

wherein such quality improvement data can be presented to a clinician with suggestions regarding appropriate care; and

wherein an interview regarding quality of care can be conducted at one or more of the following times: during the pre-visit interview, during a exit interview at the time of the session, during a follow-up interview where patients are sent an email reminder, and by means of questions inserted into a revisit interview.

55. The system of claim 23 wherein the processing mechanism is programmed to assess patient satisfaction with medical care, such that

interview questions probe issues including at least one of the patient's satisfaction with a physician or a clinic encounter, waiting times for an appointment, waiting times to see a clinician, access to care, and courtesy with which the patient is treated.

56. The system of claim 55 wherein the interview questions are asked at one or more of the following times: during a pre-visit interview, during an exit interview at the time of the session, during a follow-up interview where patients are sent an email reminder, and by means of questions inserted into a revisit interview;

57. The system of claim 23 wherein the processing mechanism further comprises a mechanism for supporting and facilitating clinical research in practice settings, as well as in research clinics, such that:

- (a) automated patient recruitment is used for research trials;
- (b) patients are asked if they would like to be informed regarding research studies for which they are eligible;

(c) eligibility requirements for research studies are entered and system logic is used to identify when patient responses regarding symptoms or medical conditions or patient demographics, such as age or gender, qualify the patient for a research study;

(d) patients are informed of studies for which they are eligible by computerized notification; and

(e) patients are electronically forwarded a specific description of the study and asked if they would like their contact information forwarded to investigators, or if they want contact information for investigators.

BT 58. The system of claim 23 wherein the processing mechanism is programmed to aid clinical research, such that:

(a) data regarding patient assessment, clinical outcomes, and physician treatment process gathered in the course of care using the system populates the health information database and can be used for research purposes; and

(b) the system is used for clinical trials to facilitate capture of patient assessment data regarding biomedical and psychosocial issues, data regarding physician treatment process, and followup data for process and outcomes.

59. The system of claim 23 wherein the processing mechanism is programmed to:

(a) elicit and structure information for a corporate wellness intervention;  
and

(b) track patient response to corporate wellness interventions over time.